

Notice of Allowability

Application No.

10/785,194

Applicant(s)

TSUKUDA ET AL.

Examiner

Art Unit

Alan Diamond

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after-final amendment filed May 2, 2005.
2. ☒ The allowed claim(s) is/are 24-29.
3. ☒ The drawings filed on 25 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/723,278.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: Wakefield et al (U.S. Patent 4,688,623) does not teach or suggest the sheet manufacturing method of claims 24 and 27 because Wakefield et al does not teach or suggest that the sheet formed on the protrusions has a shape including a plurality of adjacent curved portions, and wherein the shape of the sheet does not conform to the shape of at least some of the protrusions. With respect to Wakefield et al, the Examiner agrees with applicant that the crystals grow "laterally" from the tops of the ridges, thereby forming an "essentially flat" sheet/ribbon of silicon (see col. 3, lines 50-51, and col. 4, lines 48-54, of Wakefield et al; and page 7 of Applicant's Remarks filed 10/18/2004). The Examiner agrees with applicant (see page 7 of the Remarks filed 10/18/2004) that "[t]he flat top surfaces of the alleged protrusions in Wakefield [et al], combined with the speed and temperature of the roller, are such that the silicon crystals do not grow downwardly into the gaps between the protrusions to form a sheet with curved portions thereon. Instead, the crystals in Wakefield [et al] grow 'laterally' from the tops of the ridges, thereby forming an 'essentially flat' sheet/ribbon of silicon ... the opposite of what [is required by] claim[s] 24 [and 27]". Support for the instant requirement of a plurality of adjacent curved portions can be seen in instant Figures 32 and 33 where the silicon sheet (60) has plural curved portions, and the statement at page 27, line 15, of the instant specification that "[t]he resultant silicon sheet has curved portions on the melt side." Support for the instant requirement that the shape of the sheet does not conform to the shape of at least some of the protrusions can be found, for example, at page 13, line 23

to page 14, line 15, of the instant specification. Note, for example, page 13, line 33, of the instant specification teaches that the shape of the sheet (9) in instant Figure 5 does not correspond to the shape of the protrusions (2) of base (1). Note also in Figures 11A, 12A, and 14 that there can be some conformance with the shape of the protrusion, in particular, the conformance is with the planar protrusions that result in the planar portion near reference sign (18) in Figure 14, but there is no conformance with the linear of dot-like protrusions (see also, for example, page 16, lines 17-22, of the instant specification). Support for the sharp apex for protrusions in instant claims 28 and 29 can be found in, for example, Figures 1, 2, 3, etc. Support for the rounded apex in instant claims 28 and 29 can be found at page 12, lines 10-13, of the instant specification.

Yoshida et al (U.S. Patent 6,413,313) does not anticipate the instantly claimed subject matter because Yoshida et al does not teach, either explicitly or inherently, forming a sheet wherein the shape of the sheet does not conform to the shape of at least some of the protrusions. As seen in Yoshida et al's Figures 3 and 7, the silicon sheet S2 corresponds completely to the cylinder having the protrusions (41). The Examiner notes the statement, with respect to 35 USC 103(c), in applicant's Remarks filed 10/18/2004 (pages 6 and 9), that Yoshida et al (U.S. Patent 6,413,313) is commonly owned with the instant application, and was commonly owned at the time of the invention. Accordingly, Yoshida et al can not be used as a reference under 35 USC 103. Furthermore, there is no double patent with the claims of Yoshida et al since Yoshida et al does not have any method claims, and Yoshida et al lacks the instant

requirement that the sheet does not conform to the shape of at least some of the protrusions.

The obviousness-type double patenting rejection over U.S. Patent 6,596,075 and the provisional obviousness-type double patenting rejection over Serial No. 10/323,666 have been overcome by the terminal disclaimer filed May 2, 2005. The Examiner notes that there was also a terminal disclaimer filed April 11, 2005 that terminally disclaims over U.S. Patent 6,596,075 and over Serial No. 10/323,666. The terminal disclaimer filed May 2, 2005 was the one that was considered and approved.

Tsukuda et al (U.S. Patent 6,521,827) issued from instant parent application Serial No. 09/723,278. There is no double patenting of the instant method claims with the product claims of this patent in view of the restriction requirement in said parent Serial No. 09/723,278.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
May 6, 2005

A handwritten signature in black ink, appearing to read 'Alan Diamond', with a stylized flourish at the end.